



1652

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/644,668A

DATE: 04/29/2002
TIME: 15:09:40

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3 <110> APPLICANT: Korman, Alan J.
4 Halk, Edward L.
5 Lonberg, Nils
6 Medarex, Inc.
8 <120> TITLE OF INVENTION: Human CTLA-4 Antibodies and Their Uses
10 <130> FILE REFERENCE: 014643-010510US
12 <140> CURRENT APPLICATION NUMBER: US 09/644,668A
13 <141> CURRENT FILING DATE: 2000-08-24
15 <150> PRIOR APPLICATION NUMBER: US 60/150,452
16 <151> PRIOR FILING DATE: 1999-08-24
18 <160> NUMBER OF SEQ ID NOS: 41
20 <170> SOFTWARE: PatentIn Ver. 2.1
22 <210> SEQ ID NO: 1
23 <211> LENGTH: 3159
24 <212> TYPE: DNA
25 <213> ORGANISM: Artificial Sequence
27 <220> FEATURE:
28 <223> OTHER INFORMATION: Description of Artificial Sequence:cloning vector
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34 aaagcccgct cattagcggt gctcttggca gaacatatcc atcgcgtccg ccatctccag 180
35 cagccgcacg cggcgcatct cgggcagcgt tgggtcctgg ccacgggtgc gcatgatcgt 240
36 gctcctgtcg ttgaggaccc ggctaggctg gcggggttgc cttactgggtt agcagaatga 300
37 atcaccgata cgcgagcga cgtgaagcga ctgctgctgc aaaacgtctg cgacactgagc 360
38 aacaacatga atggtcttcg gtttccgtgt ttctgtaaagt ctggaaacgc ggaagtccgc 420
39 gcccctgcacc attatgttcc ggatctgcat cgcaggatgc tgctggctac cctgtggAAC 480
40 acctacatct gtattaaacga agcgctggca ttgaccctga gtgatttttc tctggtcccg 540
41 cccgatccat accgcccagt ttacccttc acaacgttcc agtaaccggg catgttcatc 600
42 atcagtaacc cgtatcgta gcatcctctc tcgtttcata ggtatcatta ccccatgaa 660
43 cagaaattcc cccttacacg gaggcatcaa gtgacccaaac agaaaaaaac cgccttaac 720
44 atggcccgct ttatcagaag ccagacatta acgcttctgg agaaactcaa cgagctggac 780
45 gcgatgaac aggcagacat ctgtgaatcg cttcacgacc acgctgtatga gcttaccgc 840
46 agctgcctcg cgcgttctgg tcatgacggt gaaaacctt gacacatgca gctccggag 900
47 acggtcacag ctgtctgtt agcggatgcc gggagcagac aagccgtca gggcgctca 960
48 gcgggtgttg gcgggtgtcg gggcgccatc atgaccctgtt cactgtatcg tagcggatgt 1020
49 tatactggct taactatgcg gcatcagagc agattgtact gagatgtatca cttatgcgtt 1080
50 gtgaaatacc gcacagatgc gtaaggagaa aataccgtatc caggcgctt tccgttcc 1140
51 cgctcaactga ctgcgtgcgc tcggctgttc ggctgcggcg agcggtatca gctcaactaa 1200
52 aggcggtaat acggttatcc acagaatcag gggataacgc agggaaagaac atgtgagcaa 1260
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55	caggactata	aagataccag	gcgtttcccc	ctggaagctc	cctcgtgcgc	tctccgttcc	1440
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57	ctcatagctc	acgctgttagg	tatctcagtt	cggtgttaggt	cgttcgtctcc	aagctggct	1560
58	gtgtgcacga	accccccgtt	cagcccgacc	gctgcgcctt	atccggtaac	tatcgttctt	1620
59	agtccaaccc	ggtaagacac	gacttatacg	cactggcagc	agccaggcgc	gccttggct	1680
60	aagaggccac	tggtaacagg	attagcagag	cgaggtatgt	aggcggtgct	acagagttct	1740
61	tgaagtgg	gcctaactac	ggctacacta	gaaggacagt	atttggtatac	tgcgtctgc	1800
62	tgaagccagt	tacccctgga	aaaagagttg	gtagcttctt	atccggcaaa	caaaccaccc	1860
63	ctggtagcgg	tggttttttt	gtttgcaagc	agcagattac	gcccagaaaa	aaaggatctc	1920
64	aagaagatcc	tttgatcttt	tctacggggt	ctgacgctca	gttggAACGAA	aactcacgtt	1980
65	aagggatttt	ggtcatgaga	ttatcaaaaa	ggatcttcac	ctagatcctt	ttaaattaaa	2040
66	aatgaagttt	taaatcaatc	taaaagtata	atgagtaaac	ttggtctgac	agttaccaat	2100
67	gcttaatcag	tgagggcacct	attcagcga	tctgtctatt	tcgttcatcc	atagttgcct	2160
68	gactccccgt	cgtgtagata	actacgatac	gggagggctt	accatctggc	cccagtgcgt	2220
69	caatgatacc	gcgagaccca	cgctcaccgg	ctccagattt	atcagcaata	aaccagccag	2280
70	ccggaaaggc	cgagcgcaga	agtggctctg	caactttatc	cgcctccatc	cagtttatttt	2340
71	attgttgccg	ggaagctaga	gtaagtagtt	cgccagttaa	tagtttgcgc	aacgttgtt	2400
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73	gttcccaacg	atcaaggcga	gttacatgtat	ccccatgtt	gtgcaaaaaa	gcggtagct	2520
74	ccttcggtcc	tccgatctt	gtcagaagta	agttggccgc	agtttatca	ctcatggta	2580
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76	gtgagttactc	aaccaagtca	ttctgagaat	agtgtatgcg	gcccggagt	tgcctttgcc	2700
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78	aaaaaacgtt	ttcggggcga	aaactctcaa	ggatcttacc	gttgttggaa	tccaggttcga	2820
79	tgttaacccac	tcgtgcaccc	aactgtatctt	cagcatctt	tactttcacc	agcgtttctg	2880
80	ggtgagcaaa	aacaggaagg	caaaatgcgg	caaaaaagg	aataaggcgc	acacggaaat	2940
81	gttgaatact	catacttttc	ctttttcaat	attattgtt	cattttatcg	gtttattgtc	3000
82	tcatgagcgg	atacatattt	gaatgttattt	agaaaaataa	acaaataggg	gttccgcgc	3060
83	catttccccg	aaaagtgc	cctgacgtct	aagaaaccat	tattatcatg	acattaaacct	3120
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88 <211> LENGTH: 349

89 <212> TYPE: DNA

90 <213> ORGANISM: *Homo sapiens*

90 <215> ORGANISM

93 <223> OTHER INFORMATION: preliminary sequence for heavy chain fragment
94 10D1 3

94 10D1.3
96 1100: GPO/GEN

96 <400> SEQUENCE: 2

97 tgggggaggc gtgggtcc

98 caccttcagt agctataac

99 ggtgacatt atatcatatg atggaaacaa taaatactac gcagactccg tgaaggccg 18

100 attcaccatc

101 agctgaggac acggc

102 ctggggccag ggaace

105 <210> SEQ ID NO:

106 <211> LENGTH: 321

106 <211> LENGTH: 321

107 <212> TITLE: DNA

100 <215> ORGANISM: *homo sapiens*
110 <330> FEATURE:

110 <220> FEATURE:

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 117 tcctcatcta tggtgcatcc agcagggcca ctggcatccc agacaggttc agtggcagtg 180
 118 ggtctgggac agacttcaact ctcaccatca gcagactgga gcctgaagat tttgcagtgt 240
 119 attactgtca gcagtatggt agctcaccgt ggacgttcgg ccaagggacc aaggtggaaa 300
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 125 <212> TYPE: DNA
 126 <213> ORGANISM: Homo sapiens
 128 <220> FEATURE:
 129 <223> OTHER INFORMATION: Vk A-27 germline sequence
 131 <400> SEQUENCE: 4
 132 gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60
 133 ctctcctgc gggccagtca gagtgttagc agcagctact tagcctgta ccagcagaaaa 120
 134 cctggccagg ctcccaggct cctcatctat ggtgcattca gcagggccac tggcatccca 180
 135 gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
 136 cctgaagatt ttgcagtgtta ttactgtcag cagtatggta gctcacc 287
 139 <210> SEQ ID NO: 5
 140 <211> LENGTH: 95
 141 <212> TYPE: PRT
 142 <213> ORGANISM: Homo sapiens
 144 <220> FEATURE:
 145 <223> OTHER INFORMATION: light chain variable region predicted sequence for
 146 Vk A-27 germline
 148 <400> SEQUENCE: 5
 149 Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
 150 1 5 10 15
 152 Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
 153 20 25 30
 155 Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
 156 35 40 45
 158 Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
 159 50 55 60
 161 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
 162 65 70 75 80
 164 Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser
 165 85 90 95
 168 <210> SEQ ID NO: 6
 169 <211> LENGTH: 325
 170 <212> TYPE: DNA
 171 <213> ORGANISM: Homo sapiens
 173 <220> FEATURE:
 174 <223> OTHER INFORMATION: light chain variable region (V_k), 10D1 from V_k
 175 A-27
 177 <400> SEQUENCE: 6

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178 gaaattgtgt tgacgcagtc tccaggcacc ctgtcttgc ctccagggga aagagccacc 60
 179 ctctcctgca gggccagtca gagtggttgc agcagctact tagcctggta ccagcagaaa 120
 180 cctggccagg ctcccaggct cctcatctat ggtgcattca gcagggccac tggcatccca 180
 181 gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcgag cagactggag 240
 182 cctgaagatt ttgcagtgtat ttactgtcag cagtatggta gctcaccgtg gacgttcggc 300
 183 caagggacca aggtgaaat caaac 325

186 <210> SEQ ID NO: 7
 187 <211> LENGTH: 108
 188 <212> TYPE: PRT
 189 <213> ORGANISM: Homo sapiens
 191 <220> FEATURE:
 192 <223> OTHER INFORMATION: light chain variable region predicted sequence for
 193 10D1 from Vk A-27

195 <400> SEQUENCE: 7

196 Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
 197 1 5 10 15

199 Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Gly Ser Ser
 200 20 25 30

202 Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
 203 35 40 45

205 Ile Tyr Gly Ala Phe Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
 206 50 55 60

208 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
 209 65 70 75 80

211 Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
 212 85 90 95

214 Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 215 100 105

218 <210> SEQ ID NO: 8
 219 <211> LENGTH: 325
 220 <212> TYPE: DNA
 221 <213> ORGANISM: Homo sapiens
 223 <220> FEATURE:
 224 <223> OTHER INFORMATION: light chain variable region (Vk) 4B6 from Vk A-27
 226 <400> SEQUENCE: 8

227 gaaattgtgt tgacgcagtc tccaggcacc ctgtcttgc ctccagggga aagagccacc 60
 228 ctctcctgca gggccagtca gagtggttgc agcagctact tagcctggta ccagcagaaa 120
 229 cctggccagg ctcccaggct cctcatctat ggtgcattca gcagggccac tggcatccca 180
 230 gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcgag cagactggag 240
 231 cctgaagatt ttgcagtgtat ttactgtcag cagtatggta gctcaccgtg gacgttcggc 300
 232 caagggacca aggtgaaat caaac 325

235 <210> SEQ ID NO: 9
 236 <211> LENGTH: 108
 237 <212> TYPE: PRT
 238 <213> ORGANISM: Homo sapiens
 240 <220> FEATURE:
 241 <223> OTHER INFORMATION: light chain variable region predicted sequence for
 242 4B6 from Vk A-27
 244 <400> SEQUENCE: 9

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245 Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
246 1 5 10 15
248 Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
249 20 25 30
251 Phe Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
252 35 40 45
254 Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
255 50 55 60
257 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
258 65 70 75 80
260 Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
261 85 90 95
263 Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
264 100 105
267 <210> SEQ ID NO: 10
268 <211> LENGTH: 287
269 <212> TYPE: DNA
270 <213> ORGANISM: Homo sapiens
272 <220> FEATURE:
273 <223> OTHER INFORMATION: Vk L-15 germline sequence
275 <400> SEQUENCE: 10
276 gacatccaga tgaccaggc tccatcctca ctgtctgcat ctgttaggaga cagagtcacc 60
277 atcaacttgc gggcgagtca gggattttagc agctggtag cctggtatca gcagaaacca 120
278 gagaaaagccc ctaagtccct gatctatgtc gcatccagtt tgcaaagtgg ggtcccatca 180
279 aggttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcagcct 240
280 gaagatttttcaacttattatcgtccaaacag tataatagtt accctcc 287
283 <210> SEQ ID NO: 11
284 <211> LENGTH: 94
285 <212> TYPE: PRT
286 <213> ORGANISM: Homo sapiens
288 <220> FEATURE:
289 <223> OTHER INFORMATION: light chain variable region predicted sequence for
290 Vk L-15 germline
292 <400> SEQUENCE: 11
293 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
294 1 5 10 15
296 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Trp
297 20 25 30
299 Leu Ala Trp Tyr Gln Gln Lys Pro Glu Lys Ala Pro Lys Ser Leu Ile
300 35 40 45
302 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
303 50 55 60
305 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
306 65 70 75 80
308 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr
309 85 90
312 <210> SEQ ID NO: 12
313 <211> LENGTH: 322
314 <212> TYPE: DNA

VERIFICATION SUMMARY

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